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JUL 16 1964

CURRENT SERIAL RECORDS

**WATER SUPPLY OUTLOOK**  
and  
**FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS**  
for  
**NEVADA**

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE,  
and  
NEVADA DEPARTMENT of CONSERVATION and NATURAL RESOURCES  
DIVISION of WATER RESOURCES

Data included in this report were obtained by the agencies named above in cooperation with the Federal, State and private organizations listed on the last page of this report.

AS OF  
**MAY 1, 1964**

# UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

## To Recipients of Water Supply Outlook Reports:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from advance estimates of the streamflow.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, up to 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

Streamflow forecasts are obtained by a comparison of total or maximum snow accumulation, as measured by snow water equivalent, to the subsequent spring and summer or snowmelt season runoff over a period of years. The snow water equivalent measured in selected snow courses provides most of the index to the streamflow forecast for the following season. More accurate forecasts are usually obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast procedure. Early season forecasts assume average climatic conditions through the snowmelt season.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions. Soil Conservation Service Reports may be secured from Water Supply Forecasting Unit, Soil Conservation Service, P.O. Box 2807, Portland, Oregon 97208.

## PUBLISHED BY SOIL CONSERVATION SERVICE

REPORTS	ISSUED	LOCATION	COOPERATING WITH
<b>RIVER BASINS</b>			
WESTERN UNITED STATES	MONTHLY (FEB.-MAY)	PORTLAND, OREGON	ALL COOPERATORS
BASIC DATA SUMMARY	OCTOBER 1	PORTLAND, OREGON	ALL COOPERATORS
<b>STATES</b>			
ALASKA	MONTHLY (MAR.-MAY)	PALMER, ALASKA	ALASKA S.C.D.
ARIZONA	SEMI-MONTHLY (JAN. 15 - APR. 1)	PHOENIX, ARIZONA	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO AND NEW MEXICO	MONTHLY (FEB.-MAY)	FORT COLLINS, COLORADO	COLO. STATE UNIVERSITY COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IDAHO	MONTHLY (JAN.-JUNE)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
MONTANA	MONTHLY (JAN.-JUNE)	BOZEMAN, MONTANA	MONT. AGR. EXP. STATION
NEVADA	MONTHLY (JAN.-MAY)	RENO, NEVADA	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES - DIVISION OF WATER RESOURCES
OREGON	MONTHLY (JAN.-JUNE)	PORTLAND, OREGON	OREG. STATE UNIVERSITY OREGON STATE ENGINEER
UTAH	MONTHLY (JAN.-JUNE)	SALT LAKE CITY, UTAH	UTAH STATE ENGINEER
WASHINGTON	MONTHLY (FEB.-JUNE)	SPOKANE, WASHINGTON	WN. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEB.-JUNE)	CASPER, WYOMING	WYOMING STATE ENGINEER

## PUBLISHED BY OTHER AGENCIES

REPORTS	ISSUED	AGENCY
BRITISH COLUMBIA	MONTHLY (FEB.-JUNE)	WATER RESOURCES SERVICE, DEPT. OF LANDS, FOREST AND WATER RESOURCES, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA	MONTHLY (FEB.-MAY)	CALIF. DEPT. OF WATER RESOURCES, P.O. BOX 388, SACRAMENTO, CALIF.



**WATER SUPPLY OUTLOOK**  
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**FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS**  
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**NEVADA**

*Report prepared by*

MANES BARTON

and

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SOIL CONSERVATION SERVICE  
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RENO, NEVADA

MAY 8, 1964

*Issued by*

CHARLES W. CLEARY, JR.

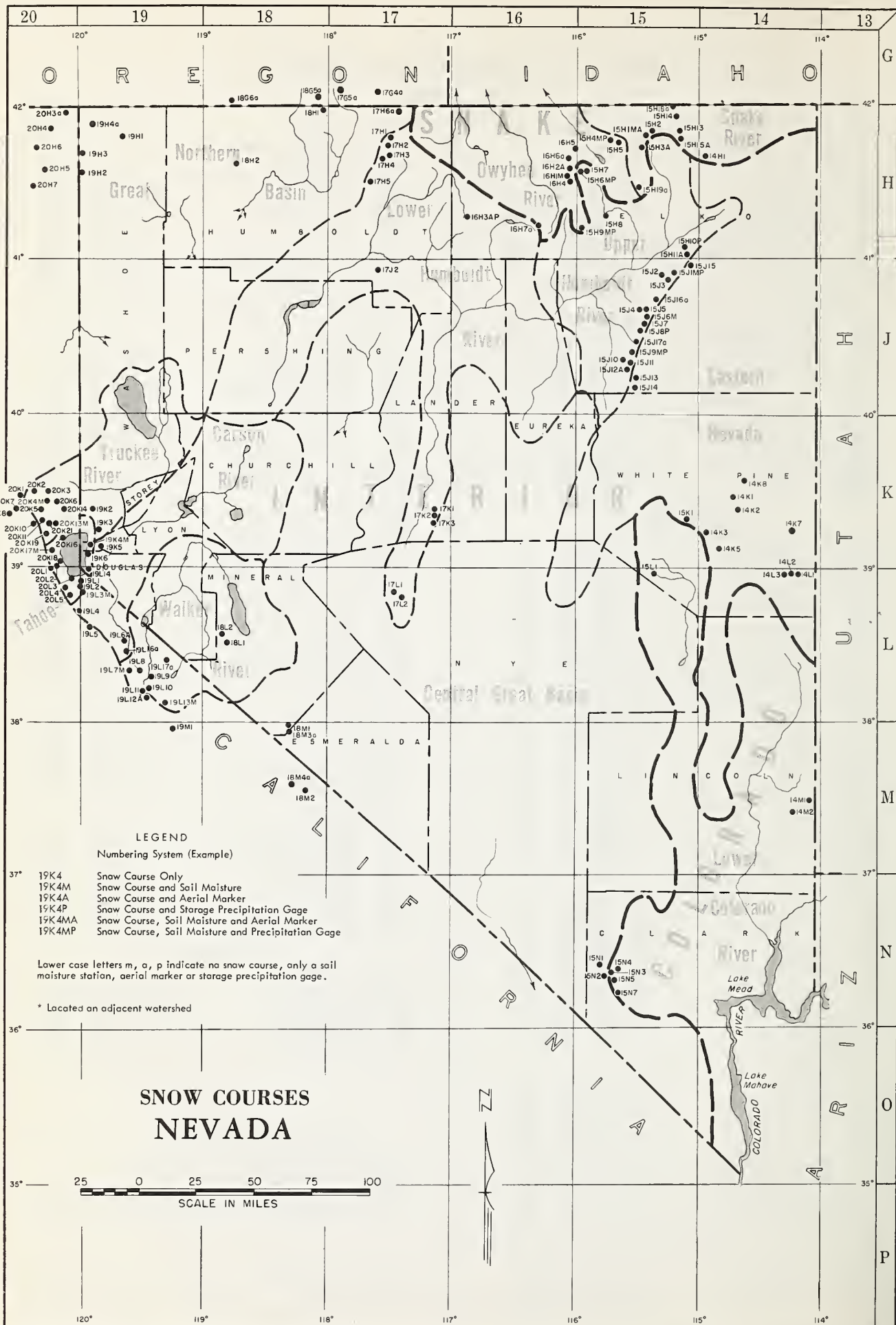
STATE CONSERVATIONIST  
SOIL CONSERVATION SERVICE  
RENO, NEVADA

HUGH A. SHAMBERGER

DIRECTOR  
DEPARTMENT OF CONSERVATION AND  
NATURAL RESOURCES  
CARSON CITY, NEVADA









WATER SUPPLY OUTLOOK  
FOR NEVADA

May 1, 1964

\* \* \* \* \*

\* Nevada's irrigation season water supply outlook has not markedly \*  
\* changed from that of a month ago. Except for Carson Valley most \*  
\* east slope Sierra water users will have an adequate water supply \*  
\* with reservoir water offsetting streamflow deficiencies. \*  
\* \*  
\* Tahoe-Truckee, Carson and Walker Basin headwater streams are fore-\*  
\* cast to flow in the 52 to 73 percent of average range during May- \*  
\* July, 1964. \*  
\* \*  
\* The water supply outlook remains good in the Humboldt - Owyhee - \*  
\* Snake Basins with May-July, 1964 forecasts ranging from 105 per- \*  
\* cent of average on the So. Fork Humboldt to 61 percent of average \*  
\* at Palisade; with most stations in 80 percent of average category.\*  
\* \*  
\* April, 1964 snowmelt has been normal to above normal. April \*  
\* streamflow has been below normal on east slope Sierra streams \*  
\* but normal in the Humboldt. April precipitation was about \*  
\* 60-70 percent of average in the Sierra and 80-125 percent of \*  
\* average in the Humboldt and Owyhee Basins. \*  
\* \*  
\* Reservoir storage as of May 1, 1964 was 84 percent of average and \*  
\* 59 percent of capacity. \*  
\* \*  
\* \* \* \* \*

STREAMFLOW FORECASTS

Due to below normal April precipitation in the Sierra, Tahoe-Truckee, Carson and Walker River forecasts have been lowered about 5 percent. May-July, 1964 forecasts range from 52 to 73 percent of average.

Lake Tahoe is forecast to rise 0.70 foot from May 1 assuming gates closed; which would raise the Lake to 6226.63 feet above sea-level. The Truckee and Little Truckee are expected to have 73-74 percent of average flows during May-July 1964.

Carson River streams should have May-July flows in the 56-59 percent of average range on the East and West Forks. On the main river in the Carson City to Fort Churchill reach, 26-35 percent of average May-July streamflow is predicted.

Walker River streams are forecast at 52-62 percent of average for the remainder of the irrigation season.

May-July, 1964 streamflow forecasts in Northeastern Nevada are as follows: Owyhee-81%, So. Fk. Humboldt-105%, Lamoille-81%, Martin-82% and Humboldt at Palisade-61%.

The White Pine County streamflow outlook has improved during the past month and can be rated fair in contrast to the poor to fair rating of April 1. Southern Nevada streamflow is still expected to be poor.



### RESERVOIR STORAGE

Storage in Nevada's principal reservoirs increased from 775,000 acre feet on April 1 to 814,000 acre feet on May 1 for a gain of 39,000 acre feet. This was 81 percent of the average April gain; which is 48,000 acre feet.

Wild Horse is full at 33,000 acre feet. May 1, 1964 contents as percent of the May 1 average for the other reservoirs were as follows: Rye Patch-85%, Tahoe-70%, Boca-104%, Lahontan-95%, Topaz-106% and Bridgeport-120%.

### SOIL MOISTURE CONDITIONS

Mountain soils in Western and Northern Nevada are well wetted. Median and lower elevation soil moisture has been improved by the storms during the past 10-14 days.

Good to excellent spring and early summer range forage growth can be expected in these areas. However, growth has been delayed by the cold weather which prevailed during these storms.

Soils in Central and Southern Nevada are drier and soil moisture is rated poor to good depending on April precipitation amounts which were quite variable.

### SNOW COVER

Although heavy snow fell during the latter part of April and during the first few days of May in many areas, these storms did not materially change the mountain snowpack condition. These storms have delayed snowmelt; but not appreciably.

May 1, 1964 snow surveys at selected key snow courses reveal that the mountain snowpack except at the higher elevations has melted at a normal to above normal rate. By basins the May 1, 1964 snowpack as percent of average is as follows: Walker-40%, Carson-56%, Tahoe-Truckee-45% and Humboldt-Owyhee-83%.





# NEVADA STREAMFLOW FORECASTS - MAY 1, 1964

The following summarized runoff forecasts are based principally on mountain snow cover and the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts.

Basin and Forecast Stream	May-July, Streamflow Thousands Acre Feet				
	Forecast 1964	15-Yr. Av. 1943-57	1964 as % of 15-Yr.Av.	Measured Runoff	
				1963	1962
<u>TRUCKEE RIVER</u>					
Lake Tahoe 1, 3	0.70	1.15	61	1.39	0.80
Little Truckee River above Boca, California <sup>3</sup>	40	55	73	84	49
Truckee River at Farad, Cal. <sup>2, 3</sup>	130	175	74	213	147
<u>CARSON RIVER</u>					
West Carson at Woodfords, Cal.	23	41	56	*	37
East Carson nr. Gardnerville, Nev.	90	152	59	189	135
East Carson nr. Gardnerville, Nev. (Date of 200 c.f.s. flow)	7/4	7/22	--	8/5	7/26
Carson River nr. Carson City, Nev.	50	145	35	188	130
Carson River at Ft. Churchill, Nev.	35	135	26	161	112
<u>WALKER RIVER</u>					
West Walker below E. Fk. nr. Coleville, Cal.	80	130	62	166	126
East Walker nr. Bridgeport, Cal. <sup>4</sup>	27	52	52	83	50
<u>COLORADO RIVER</u>					
Virgin River at Virgin, Utah <sup>5</sup>	30	44	68	18	57

(Continued)



NEVADA STREAMFLOW FORECASTS - MAY 1, 1964 (Continued)

Basin and Forecast Stream	May-July, Streamflow Thousands Acre Feet				
	Forecast 1964	15-Yr. Av.	1964 as % of 15-Yr. Av.	Measured Runoff	
		1943-57		1963	1962
<u>HUMBOLDT RIVER</u>					
So. Fk. Humboldt nr. Elko, Nev.	60	57	105	73	83
Lamoille Creek nr. Lamoille, Nev.	22	27	81	30	29
Humboldt River at Palisade, Nev.	100	163	61	204	207
Humboldt River at Comus, Nev.	60	105	57	131	169
Martin Creek nr. Paradise, Nev.	9	11	82	8	10
<u>SNAKE RIVER</u>					
Owyhee River nr. Gold Creek, Nev. <sup>6</sup>	9	11	82	15	11
Owyhee River nr. Owyhee, Nev. <sup>6</sup>	43	53	81	65	45
Salmon Falls Creek nr. San Jacinto, Nevada <sup>7</sup>	60 58	55 53	110 110	-- --	67 63
<u>SURPRISE VALLEY</u>					
Bidwell Cr. nr. Ft. Bidwell, Cal. <sup>8</sup>	11.5	16.0**	72	13.3	8.9
Mill Cr. nr. Cedarville, Cal. <sup>8</sup>	4.5	6.1	74	5.5	3.6
Deep Cr. nr. Cedarville, Cal. <sup>8</sup>	3.0	4.2	71	4.3	2.4
Eagle Cr. nr. Eagle, Cal. <sup>8</sup>	4.3	5.8	74	5.2	4.1

1. Maximum rise, in feet, from May 1, assuming gates closed.
2. Exclusive of Tahoe and corrected for storage in Boca Reservoir.
3. Forecast issued by Truckee Basin Water Committee, composed of Truckee-Carson Irrigation District, Sierra Pacific Power Company and Washoe County Water Conservation District.
4. For period May through August corrected for storage in Bridgeport Reservoir.
5. April-June forecast; issued by SCS, Salt Lake City, Utah.
6. Corrected for storage in Wild Horse Reservoir.
7. May-Sept. and May-July forecasts respectively; issued by SCS, Boise, Idaho.
8. April-Sept. forecast; coordinated forecast of SCS and California Dept. of Water Resources, Snow Survey Units.

\* Gage washed out February, 1963; record incomplete

\*\* Adjusted average.





## NEVADA

## STATUS OF RESERVOIR STORAGE

May 1, 1964

BASIN AND STREAM	RESERVOIR	USABLE CAPACITY (1000 AF)	USABLE STORAGE - 1000 ACRE FEET			
			1964	1963	1962	MAY 1 15-YR. AVE. 1943-57
Owyhee	Wild Horse	33	33	21	33	26
Lower Humboldt	Rye Patch	179	97	77	62	114
Colorado	Mohave	1,810	1,715	1,735	1,698	1,516*
Colorado	Mead	27,217	14,564	21,054	19,357	16,451
Tahoe	Tahoe	732	352	321	136	498
Truckee	Boca	41	26	41	40	25
Truckee	Prosser**	29	14	19	Storage began Jan. 30, 1963	
Carson	Lahontan	286	220	284	169	232
West Walker	Topaz	59	47	58	30	44
East Walker	Bridgeport	42	39	42	32	32

\* 1950-57

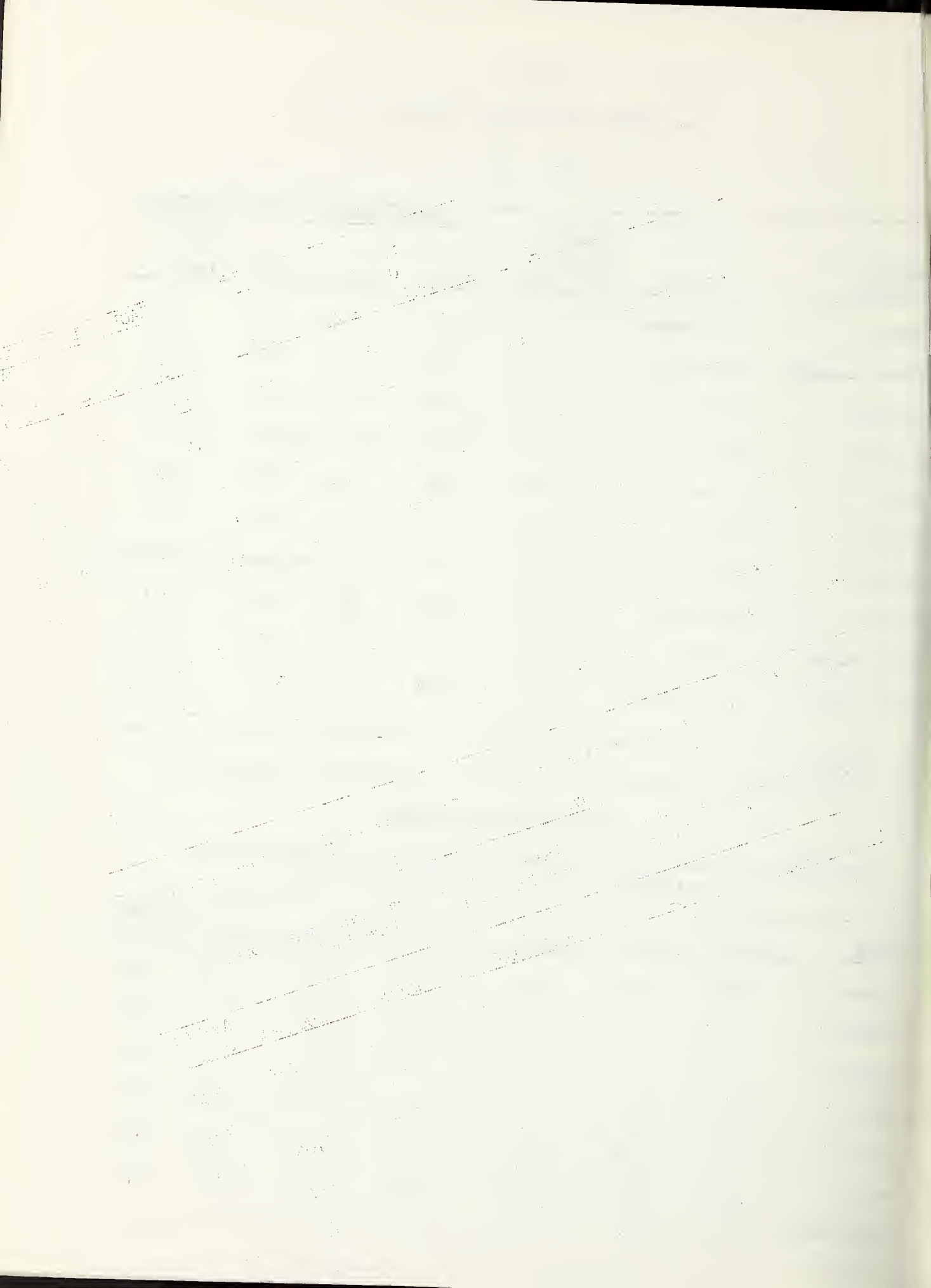
\*\* Flood control use allocation of 20,000 a.f. between Nov. 1 and Apr. 10

TOTAL RESERVOIR STORAGE

Developed from Wild Horse, Rye Patch, Tahoe, Boca, Lahontan, Topaz  
and Bridgeport Reservoirs in 1000's Acre Feet

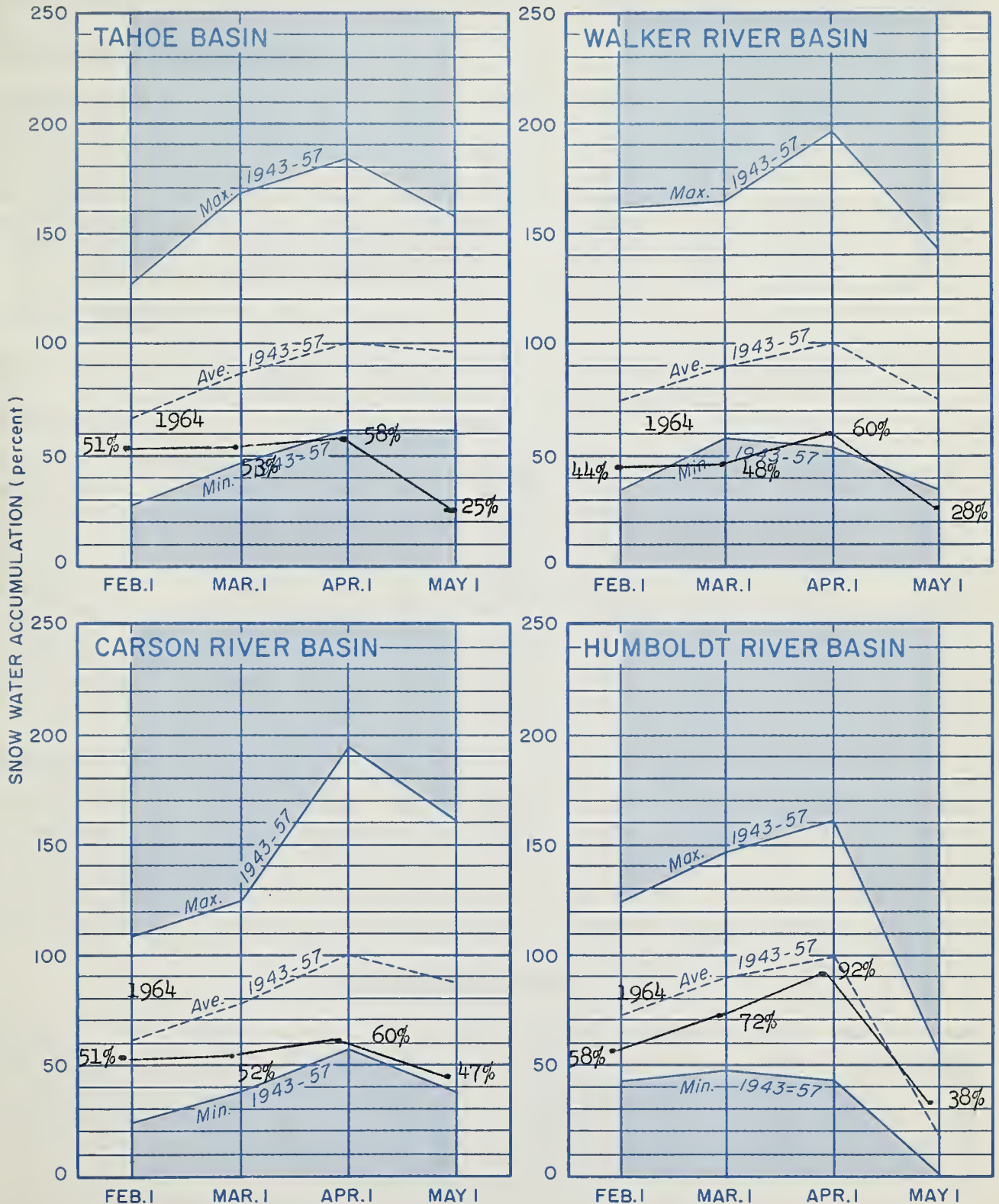
MONTH	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64	AVERAGE 1943-57
October 1	985	489	263	65	345	707	732
January 1	890	367	206	57	419	756	787
February 1	947	398	218	73	558	784	842
March 1	1,038	494	254	210	696	777	877
April 1	1,066	592	285	318	769	775	923
May 1	1,036	632	300	499	844	814	971

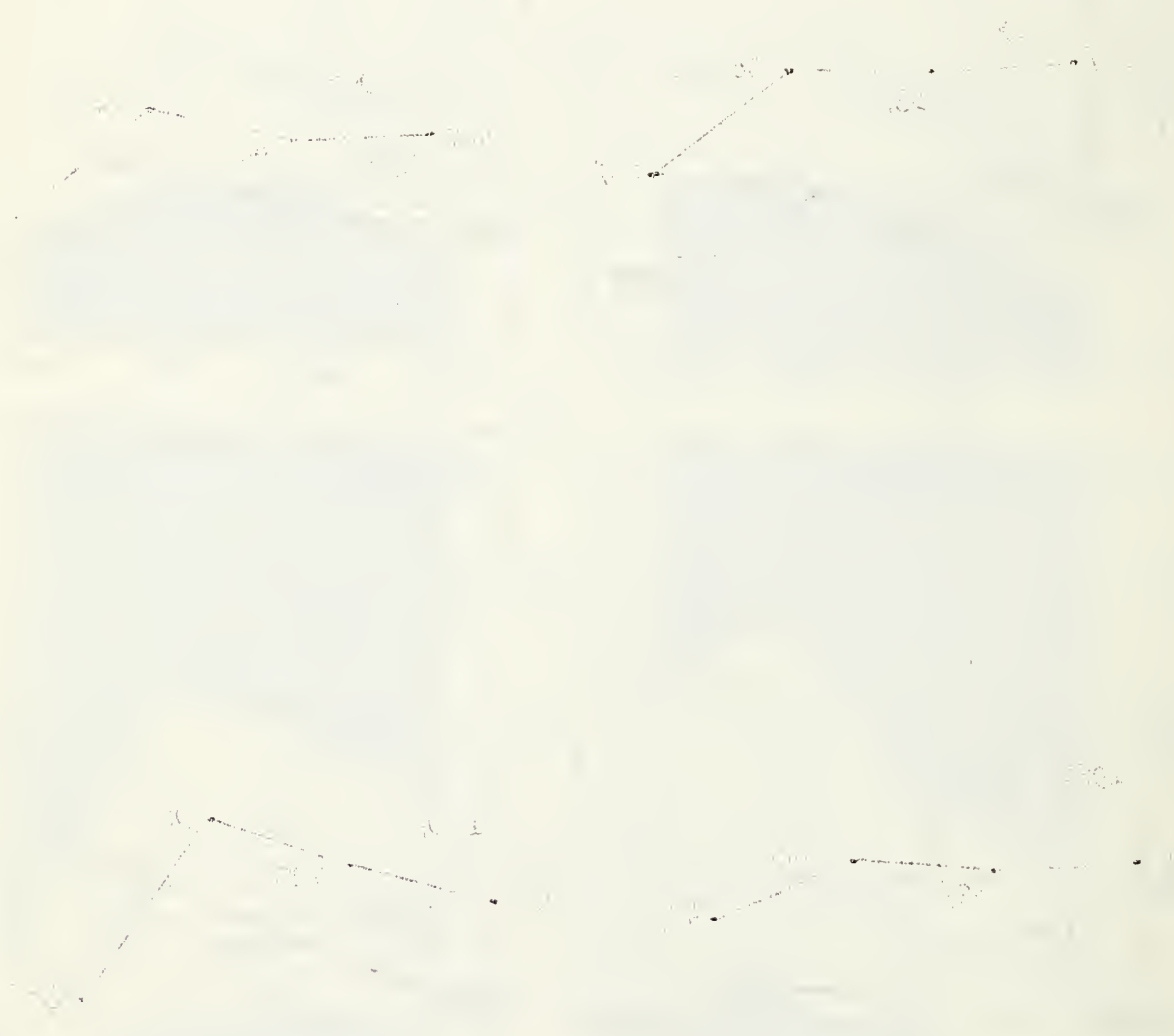
TOTAL USABLE CAPACITY 1,372



# SNOW WATER ACCUMULATION in NEVADA by BASIN

MAY 1, 1964







## NEVADA SNOW SURVEYS

MAY 1, 1964

WATERSHED AND COURSE	Elev.	May 1, 1964		Water Content (Inches)			
		Date	Depth	Water Content (In.)	May 1		
			Snow (In.)		May 1 1963	May 1 1962	1943-57 Avg. April 1 1964

WALKER-CARSON-TAHOE-TRUCKEE

Virginia Lakes	9500	5/1	14	4.9	22.4	17.6	11.6*	10.2
Sonora Pass	8800	5/1	19	6.7	25.2	21.2	17.4*	15.0
Carson Pass, Upper	8600	4/26	41	18.0	34.5	32.9	31.1	21.6
Blue Lakes	8000	4/28	42	16.4	30.0	31.0	31.4	22.5
Echo Summit	7500	4/30	20	8.6	20.0	27.1	26.9	20.7
Donner Summit	6900	Report	delayed		27.8	31.2	26.3	30.2
Furnace Flat	6600	Report	delayed		36.6	49.9	38.6*	38.4
Fordyce Lake	6500	Report	delayed		29.6	39.8	29.9*	32.7

SURPRISE VALLEY

Cedar Pass	7100	5/4	32	8.7	9.1	3.0	10.0*	15.6
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SNAKE-OWYHEE

Hummingbird Springs	8945	4/29	81	32.2a	22.6a	31.3a	25.2*	21.1
Goat Creek	8800	4/29	43	20.2a	18.9	21.2a	19.9*	15.2
Pole Creek R. S.	8330	4/30	63	25.1	20.0	23.9	22.9	21.6
Bear Creek	7800	4/29	44	17.5a	18.6a	25.1a	21.2*	19.8
Big Bend	6700	4/29	6	2.4	T	0.0	1.6*	10.4
Gold Creek	6600	4/29	0	0.0	0.0	0.0	0.0*	8.5
Jacks Peak	8420	5/1	69	25.2	24.0	35.1	26.8*	24.8
Jack Creek, Upper	7250	5/1	6	1.2	5.3	0.0	4.0*	10.7
Jack Creek, Lower	6800	5/1	T	T	2.2	0.0	0.0*	5.8
Taylor Canyon	6200	5/1	0	0.0	1.0	0.0	0.0*	6.7
Red Point	7940	4/29	47	18.7a	8.7a	8.7a	--	17.0a

HUMBOLDT

Rodeo Flat	6800	4/29	0	0.0	T	0.0	1.7*	6.2
Fry Canyon	6700	4/29	0	0.0	T	0.0	1.3*	6.9
Tremewan Ranch	5700	4/29	0	0.0	0.0	--	--	T

WHITE PINE COUNTY

Berry Creek	9100	4/30	44	14.7	16.3	15.0	17.6*	11.3
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1964 DELAYED DATA

Campito	2/1	2	0.3	Jack Cr., Upper	3/6	42	10.0a
Tioga Pass	1/28	31	9.1	Midas	3/6	6	1.8a
Carson Pass, Up.	3/4	56	19.0	76 Creek	3/6	33	8.6a
American Beauty	3/6	34	8.5a	Stag Mountain	3/6	28	7.3a
Columbia Basin	3/6	39	10.1a	Toe Jam	3/6	29	7.5a
Corral Canyon	3/6	45	11.2a	Red Point	3/28	55	17.0a

\* 1943-57 adjusted average.

a Aerial snow depth gage; water content estimated.



## Agencies Cooperating in Collecting Data Contained in this Bulletin

### FEDERAL

- Agricultural Research Service
- Army
- Bureau of Reclamation
- Fish and Wildlife Service
- Forest Service
- Geological Survey
- Navy
- Soil Conservation Service
- Weather Bureau

### STATE

- California Cooperative Snow Surveys
- California Department of Water Resources
- Colorado River Commission of Nevada
- Nevada Association of Soil Conservation Districts
- Nevada Cooperative Snow Surveys
- Nevada Department of Conservation & Natural Resources
  - Division of Water Resources
  - Nevada State Forester-Firewarden
- Oregon Cooperative Snow Surveys
- University of Nevada
- White Mountain Research Station, Univ. of California

### PRIVATE

- Amalgamated Sugar Company
- Kennecott Copper Corporation
- Nevada Irrigation District
- Owyhee Project North Board of Control
- Owyhee Project South Board of Control
- Pacific Gas & Electric Company
- Pershing County Water Conservation District
- Sierra Pacific Power Company
- Squaw Valley Development Company
- Truckee-Carson Irrigation District
- Virginia City Water Company
- Walker River Irrigation District
- Washoe County Water Conservation District

Other organizations and individuals furnish valuable information for the snow survey reports. Their Cooperation is gratefully acknowledged.

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